

WHAT IS CLAIMED IS:

1. A volume management method for setting at least a logical volume over a plurality of physical
5 storage devices, said method comprising the steps of:

receiving a volume creation request specifying a requested storage capacity and requested average performance;

forming a judgment as to whether or not there
10 exists an unoccupied area satisfying said requested storage capacity throughout said storage devices;

forming a judgment as to whether or not all volumes, which include existing volumes each sharing any of said storage devices with a volume to be
15 created and said volume to be created, each satisfy its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes if said unoccupied area satisfying a requested storage
20 capacity is determined to exist; and

setting said volume to be created if all said volumes each satisfy said requested average performance.

2. A volume management method according to
25 claim 1 wherein:

all said volumes pertain to the same parity group; and

a request for creating a volume is a request to move said volume from another parity group.

5 3. A volume management method according to claim 1 wherein, if existing unoccupied areas do not satisfy at least one of said requested storage capacity and said requested average performance, an unoccupied area is again searched for by softening a
10 condition for satisfying said requested storage capacity by reduction of said requested storage capacity by a predetermined fraction if said requested storage capacity is not satisfied, or by softening a condition for satisfying said requested
15 average performance by reduction of said requested average performance by a predetermined fraction if said requested average performance is not satisfied.

 4. A volume management method for searching a storage apparatus comprising a plurality of physical
20 storage devices, on which at least one logical volume is set, for an unoccupied area used by a new volume over some of said physical storage devices, said method comprising:

 receiving an unoccupied-area-searching request
25 specifying information on requested average

performance;

forming a judgment as to whether or not all volumes, which include existing volumes and said new volume supposed to be added to said existing volumes, each satisfy its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes which share any of said storage devices with an unoccupied area; and

displaying information on said area if all said volumes each satisfy said requested average performance.

5. A volume management apparatus for setting at least a logical volume over a plurality of physical storage devices, said apparatus comprising:

a means for receiving a volume creation request specifying a requested storage capacity and requested average performance;

a means for forming a judgment as to whether or not there exists an unoccupied area satisfying said requested storage capacity throughout said storage devices;

a means for forming a judgment as to whether or not all volumes, which include existing volumes each sharing any of said storage devices with a

volume to be created and said volume to be created,
each satisfy its requested average performance by
referring to information of requested average
performance on a storage means for each of said

5 existing volumes if said unoccupied area satisfying a
requested storage capacity is determined to exist;
and

a means for setting said volume to be created
if all said volumes each satisfy said requested
10 average performance.

6. A volume management apparatus for
searching a storage apparatus comprising a plurality
of physical storage devices, on which at least one
logical volume is set, for an unoccupied area used by
15 a new volume over some of said physical storage
devices, said apparatus comprising:

a means for receiving an unoccupied-area-
searching request specifying information on requested
average performance;

20 a means for forming a judgment as to whether
or not all volumes, which include existing volumes
and said new volume supposed to be added to said
existing volumes, each satisfy its requested average
performance by referring to information of requested
25 average performance on a storage means for each of

said existing volumes which share any of said storage devices with an unoccupied area; and

a means for displaying information on said area if all said volumes each satisfy said requested
5 average performance.

7. A program to be executed by a computer to implement a function of setting at least a logical volume over a plurality of physical storage devices wherein said program has functions of:

10 receiving a volume creation request specifying a requested storage capacity and requested average performance;

forming a judgment as to whether or not there exists an unoccupied area satisfying said requested
15 storage capacity throughout said storage devices;

forming a judgment as to whether or not all volumes, which include existing volumes each sharing any of said storage devices with a volume to be created and said volume to be created, each satisfy
20 its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes if said unoccupied area satisfying a requested storage capacity is determined to exist; and

25 setting said volume to be created if all said

volumes each satisfy said requested average performance.

8. A program to be executed by a computer to implement a function for searching a storage
5 apparatus comprising a plurality of physical storage devices, on which at least one logical volume is set, for an unoccupied area used by a new volume over some of said physical storage devices wherein said program has functions of:

10 receiving an unoccupied-area-searching request specifying information on requested average performance;

forming a judgment as to whether or not all volumes, which include existing volumes and said new
15 volume supposed to be added to said existing volumes, each satisfy its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes which share any of said storage
20 devices with an unoccupied area; and

displaying information on said area if all said volumes each satisfy said requested average performance.

9. A volume management method adopted by a
25 management computer included in a computer system

comprising a storage apparatus having a plurality of physical storage devices over which at least a logical volume is set, a client computer for making accesses to information stored in said storage apparatus, said management computer for managing volumes in said storage apparatus and a network for connecting said storage apparatus, said client computer and said management computer to each other, said method comprising the steps of:

10 receiving a volume creation request specifying a requested storage capacity and requested average performance;

 forming a judgment as to whether or not there exists an unoccupied area satisfying said requested storage capacity throughout said storage devices;

15 forming a judgment as to whether or not all volumes, which include existing volumes each sharing any of said storage devices with a volume to be created and said volume to be created, each satisfy

20 its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes if said unoccupied area satisfying a requested storage capacity is determined to exist; and

25 setting said volume to be created if all said

volumes each satisfy said requested average performance.

10. A volume management method for searching a storage apparatus for an unoccupied area used by a new volume, adopted by a management computer included in a computer system comprising said storage apparatus having a plurality of physical storage devices over which at least a logical volume is set, a client computer for making accesses to information stored in said storage apparatus, said management computer for managing volumes in said storage apparatus and a network for connecting said storage apparatus, said client computer and said management computer to each other, said method comprising the steps of:

receiving an unoccupied-area-searching request specifying information on requested average performance;

forming a judgment as to whether or not all volumes, which include existing volumes and said new volume supposed to be added to said existing volumes, each satisfy its requested average performance by referring to information of requested average performance on a storage means for each of said existing volumes which share any of said storage

devices with an unoccupied area; and

displaying information on said area if all said volumes each satisfy said requested average performance.